**EMB190 Alerting Issues – In-flight (hidden) cabin fire/smoke**

**1. Initiating Condition:  Ignition from short circuit in electrical wiring behind cabin interior panel leading to inextinguishable cabin fire**

| Type | Alert or cue | Threshold for alert or cue to be presented | Confusion regarding alert or cue | Other issues with regard to alert or cue | When alert is inhibited/suppressed or when cue is masked | How alert or cue is terminated |
|---|---|---|---|---|---|---|
| **Visual Alerts** | None | | | | | |
| **Aural Alerts** | None | | | | | |
| **Tactile Alerts** | None | | | | | |
| **Visual Cues** | None until smoke reaches the flight deck | Smoke visible | Smoke cue not necessarily indicative of the extent/seriousness of the fire especially if fire source is remote from flight deck; confusion among smoke source (a/c vs. cabin) and smoke vs. humidity/vapor | Cue may not be presented to pilots | Extent/seriousness of the fire may be masked by being hidden behind panels | (Cue will not be eliminated because the fire is not extinguishable) |
| **Aural Cues** | None until flight attendants call pilots on interphone or cargo supernumeraries advise pilots | | Flight attendants may not know or communicate the extent/seriousness of the fire | Cue may not be presented to pilots | Extent/seriousness of the fire may be masked by being hidden behind panels | (Cue will not be eliminated because the fire is not extinguishable) |
| **Tactile/ Somatic Cues** | None | | | | | |
| **Olfactory Cues** | None until smoke is smelled | | Smoke cue not necessarily indicative of the extent/seriousness of the fire especially if fire source is remote from flight deck | Cue may not be presented to pilots | | |

**Expected Pilot Response(s)**

- Perform SMOKE/FIRE/FUMES QRH procedure
- Perform SMOKE/FUMES REMOVAL procedure if/as directed by the SMOKE/FIRE/FUMES procedure

**EMB190 Alerting Issues – In-flight (hidden) cabin fire/smoke**

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|------|--------------|--------------------------------------------|----------------------------------|------------------------------------------|----------------------------------------------------------|--------------------------------|
| | | | | | | |

- Perform emergency descent as specified by NNP
- Prepare for emergency landing, off-airport if necessary, as specified by NNP
- Land at nearest suitable airport or immediately as specified by the NNP and as pilot judgment suggests

**EMB190 Alerting Issues – In-flight (hidden) cabin fire/smoke**
1. Initiating Condition:  Ignition from short circuit in electrical wiring behind cabin interior panel leading to inextinguishable cabin fire – Cont.

<u>**Possible sources of confusion with regard to pilot response(s)**</u>
- Pilots have incomplete information about the extent/seriousness of the fire and its progression, and thus need to decide on appropriate procedures with incomplete/ambiguous information, including which fire/smoke procedures, whether/when to perform an emergency descent, and when/how to shortcut normal procedures to expedite landing
- Pilots have incomplete information about the extent/seriousness of the fire and its progression, and thus need to decide on whether/when/where to land; for example, pilots do not know how much time is available to get the airplane on the ground and thus have difficulty evaluating the risk/benefit of an off-airport landing and even how much time to spend slowing down for landing.
- History of false fire/smoke detector alarms can cause pilots to downplay or discount a valid warning

<u>**How does pilot know condition is resolved/recovered?**</u>
- Pilots may receive information from flight attendants who are fighting the fire, including gaining access to hidden areas by removing panels
- Situation cannot be resolved until aircraft has landed and crew performs emergency evacuation

<u>**Issues with regard to multiple concurrent non-normal conditions**</u>
- Pilots may receive alerts/cues from failure conditions secondary to fire damage; it will be unclear to them to what extent they need to respond to these and how to prioritize their response